

JUL 09 2008

CE11150J1280

Application S/N 10/026,242
Amendment dated: June 10, 2005
Response to Office Action dated: March 10, 2005

REMARKS/ARGUMENTS

The Applicants have canceled claims 17 and 24. As such, after this response, claims 15, 16, 18-20, 22 and 23 remain pending in the application. In the Office Action, claims 15-19 were objected to because it appeared that the phrase "the steps of" was inadvertently added into the claim language. Applicants have deleted "the steps of" language from claim 15. In addition, claims 15, 16, 20 and 24 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,495,665 to Carpenter, et al. (Carpenter). Claims 17-19, 22 and 23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter, as applied to claims 15 and 20 above, in view of U.S. Patent No. 6,580,036 to Kim, et al. (Kim). Concerning the Examiner's request for a publication date for article, *HDI's Beneficial Influence on High-Frequency Signal Integrity* by Happy Holden, the Applicants have been unable to establish a publication date for this reference. Nonetheless, Applicants believe that a publication date for this reference is irrelevant because the present invention is patentably distinct over it.

A brief summary of the Carpenter and Kim references may be helpful here. Carpenter discloses a process for providing a landless via connection. In particular, as shown in the figures, vias 8 are formed in dielectric layers 1 and 2, and the vias 8 are then plated with conductive layers 10 and 11. Additional conductive layers 12 and 13 are placed over the vias 8, and an internal dielectric layer 14 is sandwiched between the vias 8. The conductive layers 10 and 11 of the vias 8 are not in contact with one another in view of the internal dielectric layer 14. Kim discloses a multi-layer printed circuit board and a BGA semiconductor package using the board. The multi-layer circuit

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board is shown in FIG. 5. The vias that are shown in this drawing are in accordance with a staggered via structure.

Independent claims 15 and 20 have been amended to clarify that the microvias have conductive layers and that these conductive layers are in contact with each other. These claims have also been amended to clarify that the microvias are vertically aligned with one another. This arrangement allows for interconnection between multiple layers, but it reduces the amount of area required for the vias, which allows for smaller and tighter packaging. In contrast, neither the Carpenter nor the Kim patent – nor any other cited prior art reference – shows, describes, teaches or suggests such a concept, either individually or in combination with another reference. At best, the Kim patent shows the staggered approach, which takes up significantly more area than the present claimed invention.

In view of the above, Applicant now believes that independent claims 15 and 20 are patentable over the prior art. Applicant also believes that those claims that depend from independent claims 15 and 20 are patentable, both based on their dependencies on the independent claims and their patentability on their own. Reconsideration and withdrawal of the rejection of the claims is respectfully requested. Passing of this case is now believed to be in order, and a Notice of Allowance is earnestly solicited.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

In the event that the Examiner deems the present application non-allowable, it is requested that the Examiner telephone the Applicant's attorney or agent at the number

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indicated below so that the prosecution of the present case may be advanced by the clarification of any continuing rejection.

The Commissioner is hereby authorized to charge any necessary fee, or credit any overpayment, to Motorola, Inc. Deposit Account No. 50-2117.

Respectfully submitted,

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